spores in cultures, and Basidiomycetes generally have rarely been made to do so.

The actions of the mycelium on the wood of *Æsculus*, *Pinus*, *Quercus*, and *Salix* are also examined, and this is, so far as known, the first time this has been done with pure cultures.

Anatomical and histological details, with figures, are given in the complete paper.

"On the Thermal Conductivities of Single and Mixed Solids and Liquids, and their Variation with Temperature." By CHARLES H. LEES, D.Sc., Assistant Lecturer in Physics in the Owens College. Communicated by Professor SCHUSTER, F.R.S. Received November 30,—Read December 16, 1897.

(Abstract.)

These experiments were undertaken with a view to determining the effect of temperature on thermal conductivities, and the relation between the conductivity of a mixture and the conductivities of its constituents. The apparatus consisted of a number of flat circular copper discs, into each of which a thermo-junction was soldered. The substances to be experimented on were placed between these discs, heat was supplied to one of the discs at a measured rate, by passing an electric current through a coil in contact with it, and the differences of temperature between the discs were measured by balancing the thermo-electromotive forces produced, against the fall of potential down a wire. About thirty solids, liquids, substances near their melting points, and mixtures of liquids, were tested between temperatures of 15° and 50° C., and the following statements embody the results :—

1. Solids not very good conductors of heat in general decrease in conductivity with increase of temperature in the neighbourhood of 40° C. Glass is an exception to this rule.
2. Liquids follow the same law in the neighbourhood of 30° C.
3. The conductivity of a substance does not invariably change abruptly at the melting point.
4. The thermal conductivity of a mixture lies between the conductivities of its constituents, but is not a linear function of its composition.
5. Mixtures of liquids decrease in conductivity with increase of temperature in the neighbourhood of 30° C., at about the same rate as their constituents.